

Clinical pathology diagnostic challenge: case #17

Signalment: neutered 4 year old male Rottweiler.

History: exercise intolerance, syncope.

Physical exam observations: mild tachypnea.

CBC results*

Hematocrit (0.37-0.55 L/L)	0.42
Hemoglobin (120-180 g/L)	162
Erythrocytes ($5.5-8.5 \times 10^{12}$ /L)	6.2
MCV (60-77 fL)	68
MCHC (320-360 g/L)	390
Reticulocytes (<1 %)	-
Reticulocytes ($<60\,000 \times 10^6$ /L)	-
Platelets ($200-900 \times 10^9$ /L)	266
Plasma protein (60-80 g/L)	-
Leukocytes ($6.0-17.0 \times 10^9$ /L)	9.7
Neutrophils (mature)($3.0-11.5 \times 10^9$ /L)	4.1
Neutrophils (band) ($0-0.3 \times 10^9$ /L)	-
Lymphocytes ($1.0-4.8 \times 10^9$ /L)	3.1
Monocytes ($<1.4 \times 10^9$ /L)	1.3
Eosinophils ($0.1-1.3 \times 10^9$ /L)	1.1
Basophils ($0 - \text{rare} \times 10^9$ /L)	0.1

* Mild hemolysis in the tube

Clinical chemistry results

Glucose (3.38-6.88 mmol/L)	5.7
BUN (2.09-7.91 mmol/L)	13.21
Creatinine (58-127 μ mol/L)	114.9
ALT (4-62 U/L)	14
Alkaline phosphatase (6-80 U/L)	54
Total protein (56.6-74.8 g/L)	50
Albumin (29.1-39.7 g/L)	15
Globulins (23.5-39.1 g/L)	35
Calcium (2.38-3.00 mmol/L)	2.33
Phosphorus (0.75-1.70 mmol/L)	1.52
Potassium (3.82-5.34 mmol/L)	5.5
Sodium (143-154 mmol/L)	147
Chloride (108-117 mmol/L)	112
Total CO ₂ (17-25 mmol/L)	17
Anion Gap (12-24 mmol/L)	23.5

Urinalysis (cystocentesis)

Color	yellow
Turbidity	mildly turbid
Specific gravity	1.019
pH	7.5
Proteins	3+
Glucose	neg.
Ketone bodies	neg.
Bilirubin	neg.
Blood	neg.

Urinary proteins	609 mg / dL
Urinary creatinine	57 mg / dL
Protein: creatinine ratio	10.7

Coagulation times

Prothrombin time

Patient: 6.8 seconds
Control: 8.9 seconds

Partial thromboplastin time

Patient: 10.8 seconds
Control: 10.6 seconds

Dirofilariasis antigen test: negative

Blood gaz (arterial)

pH 7.39 (7.35-7.45)*
pCO₂ 26.8 (36-44 mm Hg)
pO₂ 75.3 (85-95 mm Hg)
HCO₃⁻ 15.9 (24-26 mEq/L)
Sat O₂ 94.5% (>95%)

*Reference values listed between parentheses

Using the laboratory changes, submit a differential diagnosis and justify it (pathophysiology). If needed list other possible tests to confirm your diagnosis.